OPERATIONS & MAINTENANCE PLAN

FOR

ASBESTOS-CONTAINING MATERIALS

Main Clinic Building
St. Paul, Alaska

October 3, 2003

Prepared for

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

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OPERATIONS AND MAINTENANCE PLAN FOR ASBESTOS-CONTAINING MATERIALS

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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ACM	Asbestos-Containing Materials
AHERA	Asbestos Hazard Emergency Response Act
CFR	Code of Federal Regulations
EHS-Alaska	Environmental Health Sciences-Alaska, Inc.
EPA	Environmental Protection Agency
f/cc	fiber per cubic centimeter
GWB	Gypsum Wallboard
HEPA	Honeywell Enviracaire Portable Air
HVAC	Heating, Ventilation, and Air Conditioning
NESHAP	National Emissions Standard for Hazardous Air Pollutants
NOAA	National Oceanic & Atmospheric Administration
NVLAP	National Voluntary Laboratory Accreditation Program
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PLM	Polarized Light Microscopy
TEM	Transmission Electron Microscopy
TSI	Thermal System Insulation
TWA	time-weighted average

PREFACE

This Asbestos Operations & Maintenance (O&M) Plan is intended to provide direction for the safe handling and maintenance of asbestos-containing materials (ACM) in the St. Paul Island Main Clinic Building. This plan should supplement the normal building operation and maintenance procedures.

The use of this O&M Plan, in whole or in part, as a contract document for asbestos abatement or removal is a violation of Alaska Statute 08.01.100 and Title 12 of the Alaska Administrative Code (AAC), Part 36.

Nothing in this O&M Plan is to be interpreted so rigidly as to allow injury to personnel or damage to the facility.

Nothing in this O&M Plan is to be construed as professional architectural, engineering, legal, or medical advice as defined by Alaska statutes.

OPERATIONS AND MAINTENANCE PLAN FOR ASBESTOS-CONTAINING MATERIALS

1.0 GENERAL

PSI Environmental and Instrumentation, LLC (PSI) has prepared this Asbestos Operations and Maintenance (O&M) Plan for the National Oceanic and Atmospheric Administration (NOAA) under contract order number AB1330-02-SE-1994. NOAA is committed to providing a safe and healthful workplace for its contractors and employees. The purpose of this O&M Plan is to provide NOAA with direction for the safe handling and maintenance of asbestos-containing materials (ACM) located in the Main Clinic Building on the island of St. Paul, Alaska. This plan is designed to ensure proper procedures for clean up and repair of previously damaged ACM, to prevent future damage by minimizing disturbance of existing ACM, and to monitor the condition of ACM remaining in the Main Clinic Building. Management shall appoint an administrative person to manage the in-house asbestos program at this facility. This designated person (Safety Officer) shall have authority to direct all on-site personnel (including maintenance and custodial staff) with regard to activities at the Main Clinic Building that may disturb asbestos-containing materials.

The Asbestos O&M Plan provides guidance on worker protection, basic O&M procedures, O&M cleaning practices, and procedures for responding to minor asbestos releases. This plan specifically includes the following elements:

- General information about asbestos properties, hazards, classes, and regulations **(Sections 1.0 through 3.0)**.
- An overview of ACM inspection and survey results for the Main Clinic building **(Section 4.0).**
- O&M compliance procedures and responsibilities, including facility ACM notification and future inspection procedures **(Section 5.0)**.
- Worker protection, safe work practices for handling ACM, and recordkeeping information **(Section 6.0)**.
- Information regarding ACM-related training **(Section 7.0)**.

Appendices to this O&M plan include additional information. These are included at the end of this document. Appendices are as follows:

- **Appendix A** provides Main Clinic Building floor plans for reference in locating surveyed ACM material.
- **Appendix B** provides field data sheets and laboratory reports pertaining to the asbestos survey conducted at the Main Clinic Building.
- **Appendix C** details work practices and procedures for handling ACM during maintenance and repair of the facility; including ACM disposal. This section also explains practices for handling an accidental ACM release.

- **Appendix D** presents a reinspection report and Main Clinic Building asbestos location information for use during yearly monitoring of ACM located in the facility.
- **Appendix E** lists respirator requirements for use when handling ACM.

1.1 Asbestos-Containing Materials

ACM is defined as material that is comprised of more than one percent (1%) asbestos by weight.

The three main types of ACM that can exist in a building are:

- Surfacing Material: ACM sprayed-on or troweled-on surfaces, such as acoustical plaster, "popcorn" ceilings, and fireproofing material on structural steel.
- Thermal System Insulation (TSI): ACM applied to pipes, boilers, tanks, ducts, etc. to prevent heat loss or gain or water condensation.
- Miscellaneous ACM: All other ACM including ceiling and floor tiles, gypsum wall board (GWB) and joint compounds, exterior siding and roofing, cement-asbestos ("transite") panels and pipe, electrical insulation, etc.

ACM is also either "friable" or "non-friable." "Friable" ACM can be crumbled into a powder (when dry) by hand pressure alone. Popcorn ceilings, spray-on fireproofing, and damaged TSI are examples of friable ACM. "Non-friable" ACM includes tiles, intact GWB and joint compounds, exterior siding and roofing, transite panels and pipe, etc.

1.2 Asbestos Hazards

Asbestos may create serious health risks, including the risk of asbestosis and several types of cancer.

Asbestos-containing materials can become hazardous when, due to damage or disturbance, they release microscopic asbestos fibers into the building air. Airborne asbestos fibers may create a potential hazard for workers and other building occupants.

Intact and undisturbed asbestos materials do **not** pose a health risk, and the presence of asbestos in a building does not mean that the health of building occupants is endangered. ACM that is in good condition and is not disturbed is not likely to release asbestos fibers into the air. When ACM is properly managed, release of asbestos fibers into the air is prevented or minimized, and the risk of asbestos-related disease is greatly reduced.

1.3 Asbestos Work Classes

The Occupational Health and Safety Administration (OSHA) defines asbestos work under the following four categories:

- "Class I Asbestos Work" defined as activities involving the removal of TSI and surfacing ACM.

- "Class II Asbestos Work" defined as activities involving the removal of miscellaneous ACM including asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

- "Class III Asbestos Work" defined as repair and maintenance activities during which any ACM is likely to be disturbed.

- "Class IV Asbestos Work" defined as maintenance and custodial activities during which ACM is not likely to be disturbed and activities to clean up dust, waste, and debris containing ACM or contaminated by asbestos.

***It should be noted that this Asbestos O&M Plan only pertains to Class III and Class IV asbestos work.**

2.0 APPLICABLE REGULATIONS

Asbestos work is regulated by federal, state, and local governments. OSHA and the Environmental Protection Agency (EPA) regulate asbestos at the federal level. These regulations are published in the Code of Federal Regulations (CFR) under Title 29 (Labor) and Title 40 (Environmental). 29 CFR 1926.1101 regulates the exposure to asbestos during maintenance and construction activities.

The State of Alaska has adopted the provisions of 29 CFR 1926.1101 and has the responsibility of enforcing OSHA regulations. The State of Alaska also requires certification of workers whose duties include the disturbance of friable asbestos.

EPA regulation 40 CFR 61, the National Emission Standard for Hazardous Air Pollutants (NESHAP), requires federal notification of proposed asbestos work and "good faith" facility inspections. EPA also issued a revision to 40 CFR 763 that requires the certification of asbestos inspectors, planners, designers, supervisors, and workers for projects in all public buildings.

State and local regulations require the disposal of asbestos-containing wastes in a state permitted landfill. The landfill operator, be it a local agency or a private individual, is responsible for applying for required permits and enforcing the permit conditions.

3.0 PLAN SCOPE AND FLEXIBILITY

This Asbestos O&M Plan addresses only Class III and Class IV asbestos work to be performed by NOAA employees and contract workers. Projects involving Class I or Class II asbestos work are to be designed by certified asbestos project designers and generally will be performed by certified workers in accordance with required state and federal regulations.

No untrained employee is authorized to disturb any ACM. Only trained maintenance personnel or qualified outside contractors will be authorized to perform O&M asbestos disturbance activities at the facility. Refer to Section 8.0 for more information regarding training.

It should be noted that if ACM is in poor condition, O&M activities may not be appropriate, and encapsulation, enclosure, repair, or removal may be cost-effective alternatives.

4.0 MAIN CLINIC BUILDING INSPECTION AND SAMPLE RESULTS

Between October 15 and 16, 2002, the Main Clinic Building located on St. Paul Island, Alaska, was surveyed for ACM by PSI and Environmental Health Sciences-Alaska, Inc. (EHS-Alaska). The inspector performing the survey was an EPA-certified asbestos inspector. The purpose of the survey was to identify and sample suspected ACM used in the construction of the building, to assess the condition of these materials, and to evaluate the potential for future damage to these materials.

Building floor plans showing the locations where samples were collected and the general location of ACM that were identified are provided in Appendix A.

4.1 Sampling Results

Inspection crews accessed all building spaces, interior and exterior, to locate suspect asbestos-containing material. All suspect materials located in the building were sampled. Samples were analyzed for asbestos content by International Asbestos Testing Laboratories of Mt. Laurel, New Jersey, a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory. EPA Method 600/R-93/116, Polarized Light Microscopy, was the analytical procedure used for sample evaluation. The following tables identify samples collected and the general results of the laboratory analysis. Appendix A contains floor plans showing the locations of samples collected. It should be noted that a positive sample might designate an entire system to be asbestos-containing (such as the wallboard/joint compound system). This is further detailed in Section 5.2. The Field Data Sheets and Lab Reports in Appendix B provide specific materials analysis for each sample taken.

Analytical Sample Results for Suspected Materials at the Main Clinic Building

SAMPLE NUMBER	MATERIAL	LOCATION	ASBESTOS CONTENT
CL1015-A01	12x12 glue-on ceiling tile with 1-1/2" fissures and dots (GCT-1)	Room 32, center ceiling	None Detected
CL1015-A02	Brown GCT mastic	Room 32, center ceiling	None Detected
CL1015-A03	Gypsum wallboard	Room 32, center ceiling	None Detected
CL1015-A04	Cream sheet vinyl with mauve and periwinkle speckles (SV-1)	Room 32, doorway	None Detected
CL1015-A05	Brown cove base mastic	Room 31, NW corner	None Detected
CL1015-A06	Joint compound	Room 30, adjacent to stairwell	None Detected
CL1015-A07	9x9 gray floor tile with white streaks (FT-1)	Room 1, E wall	1.3% Chrysotile
CL1015-A08	Joint compound	Room 3, N wall	3.4% Chrysotile
CL1015-A09	FT-1	Room 29, E wall	Tile 2.5% Chrysotile Mastic None Detected
CL1015-A10	Joint compound	Room 29, E wall	1.6% Chrysotile
CL1015-A11	Gypsum wallboard	Room 29, E wall	None Detected
CL1015-A12	Dark brown mastic from GCT-1	Room 29, above doorway	None Detected
CL1015-A13	GCT-1	Room 29, above doorway	None Detected
CL1015-A14	White sink undercoating	Room 29, NW corner	1.5% Chrysotile
CL1015-A15	FT-1	Corridor 26, E end	Tile 1.2% Chrysotile Mastic None Detected
CL1015-A16	Brown ceiling tile mastic	Corridor 21, ceiling	None Detected
CL1015-A17	GCT-1	Corridor 21, ceiling	None Detected
CL1015-A18	Brown cove base mastic	Room 4, E wall	None Detected
CL1015-A19	SV-1	Room 4, E wall	None Detected
CL1015-A20	White sink undercoating	Room 24	6.9% Chrysotile
CL1015-A21	Joint compound	Room 25, S end of shielding wall	3.5% Chrysotile
CL1015-A22	Brown marlite mastic	Room 22, S wall	None Detected
CL1015-A23	Gypsum wallboard	Room 22, W wall	None Detected
CL1015-A24	White sink undercoating	ROOM 7	1.8% Chrysotile
CL1015-A25	White sheet vinyl with marbled mauve and purple streaks (SV-2)	Room 20, N wall	None Detected
CL1015-A26	Old mastic under carpet	Top of stair landing at N end of corridor 21	None Detected
CL1015-A27	Joint compound	Room 18, above doorway	None Detected
CL1015-A28	Pink sink undercoating	Room 18, S wall	10% Chrysotile
CL1015-A29	Brown cove base mastic	Room 18, W wall	None Detected
CL1015-A30	Same as SV-1 but with textured pattern (SV-4)	Room 18, W wall	SV None Detected Mastic None Detected
CL1015-A31	Old mystery sheet vinyl under SV-4	Room 18, W wall	SV None Detected Mastic None Detected
CL1015-A32	Gypsum wallboard	Room 18, W wall	None Detected

SAMPLE NUMBER	MATERIAL	LOCATION	ASBESTOS CONTENT
CL1015-A33	Sheet vinyl made to look like 12 x 12 floor tile, light marble pattern (SV-5)		None Detected
CL1015-A34	Tan flooring mastic	Room 10, NE corner	None Detected
CL1015-A35	Joint compound	Room B11, ceiling	None Detected
CL1015-A36	Joint compound	Room B10, N wall	None Detected
CL1015-A37	Gypsum wallboard	Room B10, N wall	None Detected
CL1015-A38	Gypsum wallboard	B15, bottom of stair landing	None Detected
CL1015-A39	Joint compound	B15, bottom of stair landing	None Detected
CL1015-A40	Gypsum wallboard	Room B1, Ceiling	None Detected
CL1015-A41	Black tarpaper	Room B2, Hole in ceiling leading to floor above	None Detected
CL1015-A42	Gray felt paper	Room B2, Hole in ceiling leading to floor above	None Detected
CL1015-A43	Gypsum wallboard	Room B2, Hole in ceiling leading to floor above	None Detected
CL1015-A44	Joint compound	Room B2, above doorway	None Detected
CL1015-A45	Black floor tile mastic	Room B3, center	4.6% Chrysotile
CL1015-A46	9 x9 floor tile, tan with white & brown streaks (FT-2)	Room B3, center	None Detected
CL1015-A47	Gray felt paper	B14, ceiling, NW corner	None Detected
CL1015-A48	Tan floor mastic	Beneath rubber flooring in B 13 stair landing	None Detected
CL1015-A49	Brown cove base mastic	B13, W wall	None Detected
CL1015-A50	Sheet vinyl, ¼" tile pattern (SV-6)	B13, W wall	SV None Detected Mastic None Detected
CL1015-A51	Tan stair tread mastic	B13, W stairwell	None Detected
CL1015-A52	Black mastic	E wall of room B6	None Detected
CL1015-A53	Flue sealant	Room B4	None Detected
CL1015-A54	Tarpaper	Main entry vestibule, W wall, S end	None Detected
CL1015-A55	Cement shingle	Main entry vestibule, W wall, S end	20% Chrysotile
CL1015-A56	Stair tread mastic	Main entry vestibule, stairs at S end	None Detected
CL1015-A57	Cement shingle	Exterior wall of Main entry vestibule	20% Chrysotile
CL1015-A58	Tarpaper	Exterior wall of Main entry vestibule	None Detected
CL1015-A59	Asphalt shingle	Roof, S edge	None Detected
CL1015-A60	Asphalt shingle	Roof, above pharmacy	None Detected
CL1016-A61	Felt Paper	Floor of storage room, W of 2-1	None Detected
CL1016-A62	Joint compound	Room 2-1, N wall	None Detected
CL1016-A63	SV-1	Room 2-4 behind door	SV None Detected Mastic None Detected
CL1016-A64	Brown cove base mastic	Room 2-4 behind door	None Detected

SAMPLE NUMBER	MATERIAL	LOCATION	ASBESTOS CONTENT
CL1016-A65	Gypsum wallboard	Room 2-7, E wall	None Detected
CL1016-A66	Joint compound	Room 2-7, E wall	None Detected
CL1016-A67	Tan flooring mastic	Room 2-7, E wall	None Detected
CL1016-A68	Black roof sealant	Outside E window of room 2-7	None Detected
CL1016-A69	Tarpaper	Under cement shingle on exterior wall of 2-12	None Detected
CL1016-A70	Brown GCT mastic	Room 2-10, NE corner	None Detected
CL1016-A71	GCT-1	Room 2-10, NE corner	None Detected
CL1016-A72	Gypsum wallboard	Room 2-10, NE corner	None Detected
CL1016-A73	12 x 12 gray floor tile, with white streaks (FT-3)	Closet in SE corner of 2-10	Tile 2.2% Chrysotile Mastic None Detected
CL1016-A74	Brown cove base mastic	S wall of room 2-10	None Detected
CL1016-A75	White sink undercoating	Room 2-11	10% Chrysotile
CL1016-A76	Gypsum wallboard	Room 2-12, E wall	None Detected
CL1016-A77	Joint compound	Room 2-12, E wall	None Detected
CL1016-A78	Pink sink undercoating	Room 2-22, W wall	10% Chrysotile
CL1016-A79	Joint compound	Room 2-23, E wall	None Detected
CL1016-A80	Gypsum wallboard	Hatch above 2-22	None Detected
CL1016-A81	Gypsum wallboard	Hatch above 2-25	None Detected
CL1016-A82	Joint compound	Room 2-20, N wall	None Detected

Note: The testing method used (polarized light microscopy [PLM]) is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Before this material can be considered or treated as non-asbestos-containing, confirmation should be made by quantitative transmission electron microscopy (TEM).

4.2 ACM Summary – MAIN CLINIC BUILDING

- Vinyl Floor Tile and Mastic: Both 9”x 9” vinyl floor tile, 12” x 12” vinyl floor tile and associated floor tile mastic found in the building are known to be asbestos-containing based on the results of material samples collected. This asbestos-containing vinyl floor tile was located under newer floor coverings. The asbestos-containing floor coverings were located on the southern two-thirds of the first floor, on the second floor stair landing in the center stairwell (waiting area), and in a single storage room in the basement.

  Condition: Fair to good. Non-friable. *Quantity:* Approximately 1,200 Square feet

  - Joint Compounds: Joint compound sampled in the building in all three areas of construction was found to contain asbestos. As a result, the entire gypsum wallboard/joint compound system throughout the building is assumed to asbestos-containing.

    Condition: Good. Non-friable but easily made friable.
    Quantity: Approximately 24,000 Square feet of wallboard/joint compound system

  - Sink Undercoating : Spray-on undercoating on stainless steel sinks tested throughout the building in all three areas of construction was found to contain asbestos.

Condition: Good. Non-friable. *Quantity:* Approximately 10 Each

- Cement Shingles: Cement shingles on the exterior of the building in all three eras of construction were found to contain asbestos. Cement shingles are also concealed beneath newer, non-shingled walls.

  Condition: Good. Non-friable. *Quantity:* Approximately 2,600 Square feet

- Fire Door Insulation: Insulation in the core of fire doors in the basement of the building was found to be asbestos-containing.

  Condition: Good. Friable if disturbed. *Quantity:* 3 Each

- Flange Gaskets and Valve Packing: All flange gaskets and valve packing are assumed to be asbestos-containing. It is not practical to disassemble components to sample these materials.

  Condition: Good. Non-friable. *Quantity:* 1 Lot

5.0 O&M COMPLIANCE AND RESPONSIBILITIES

5.1 Safety Officer Responsibilities

A designated Safety Officer shall administer the Asbestos O&M Plan and shall ensure its adherence. The Safety Officer will monitor ACM for accidental disturbance and will continually update the plan in all areas, including training, photos of ACM disturbance, etc.

Future sampling for ACM in the Main Clinic Building shall be conducted by an EPA-certified building inspector, and samples shall be sent to an accredited analytical laboratory for analysis.

This Asbestos O&M Plan shall be made available to all NOAA employees disturbing, repairing, or cleaning-up asbestos. The work practices included in Appendix C shall prescribe to all work with asbestos-containing materials in order to reduce the potential for employee exposure to asbestos fibers.

The Safety Officer shall ensure that all friable material will be labeled and identified as ACM with “Asbestos Danger” labels in maintenance areas.

All ACM in the Main Clinic Building shall be scheduled for an inspection of damage or deterioration every year by an EPA-accredited Asbestos Inspector. Records of these inspections shall be kept on file with the O&M Plan. Visual documentation such as photographs or video taping of damage may be kept on file as well. Inspections shall be made of any reported damage to ACM as soon as possible and the findings of the inspection recorded on the form in Appendix D of this Asbestos O&M Plan (Reinspection Report for ACM).

The Safety Officer shall ensure that all facility personnel are notified prior to the start of ACM work. Personnel shall be given information regarding the nature of the work, the work schedule, and precautions to be followed to ensure employee safety.

The Safety Officer shall conduct an Initial Exposure Assessment immediately before or at the initiation of any Class III asbestos work to determine exposure air monitoring requirements for employees. The Safety Officer will arrange for the necessary personnel and equipment needed if it is determined that air monitoring is required.

5.2 Employee Responsibilities

Main Clinic Building employee cooperation and support is vital in meeting the overall objective of maintaining a facility free of asbestos contamination. Employees are responsible for understanding the requirements of this plan and must notify the Safety Officer prior to any planned disturbance of ACM. Employees who notice any damage to ACM shall immediately notify the Safety Officer.

6.0 WORKER PROTECTION

State and federal regulations require protection of personnel from exposure to asbestos fibers.

These regulations have established specific requirements for:

- Permissible exposure limits;
- Communication among employers;
- Regulated work areas;
- Exposure monitoring;
- Methods for compliance;
- Respiratory protection;
- Protective clothing;
- Hygiene facilities and practices;
- Communication of hazards to employees;
- Housekeeping;
- Medical Surveillance; and
- Recordkeeping.

The following sections will address these regulatory requirements as they apply to the NOAA Main Clinic Building asbestos O&M activities.

6.1 Permissible Exposure Limits

OSHA has established two permissible exposure limits (PELs) for employee exposure to airborne concentrations of asbestos. The “TWA (time weighted average) limit” is based on an 8-

hour time period and limits exposure to 0.1 fiber per cubic centimeter (f/cc) of air. The "excursion limit" is based on a time period of 30 minutes and limits exposure to 1 f/cc.

6.2 Communication Among Employers

The Safety Officer is responsible for notifying all NOAA employees and contractors of the existence of asbestos in the facilities and of the requirements for working with asbestos to ensure that unprotected personnel are not exposed to asbestos. All contractors are responsible for protecting their employees from asbestos exposure.

6.3 Regulated Work Areas

A regulated area is a restricted access work area where asbestos work is being conducted. OSHA requires that all Class I, II, and III asbestos work be performed in a regulated area under the supervision of a "competent person." Access shall be limited to authorized persons wearing appropriate personal protective equipment, and signs shall be displayed showing the regulated area boundaries. All regulated areas must be marked with signs that read:

"DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATOR AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA"

6.4 Exposure Monitoring

Initial exposure monitoring is required for all asbestos work to determine the airborne concentrations of asbestos to which employees may be exposed and to determine if work practices used are appropriate. Periodic monitoring is required for all Class I and II asbestos work and for Class III and IV work where exposure is expected to exceed the PEL. Periodic monitoring may be discontinued when statistically reliable monitoring data reveals that exposures are below the PEL.

6.5 Methods for Compliance

Workers disturbing asbestos shall use the following engineering controls and work practices for all classes of asbestos work, regardless of levels of exposure.

- Vacuum cleaners equipped with Honeywell Enviracaire Portable Air (HEPA) filters to collect all asbestos-containing debris or dust.
- Wet methods or wetting agents to control fiber release during asbestos handling, removal, cutting, and clean up, except where wet method may create a greater safety hazard.
- Prompt clean up and disposal of asbestos waste and debris in leak-tight containers.

Step-by-step procedures and work practice for specific asbestos operations are provided in Appendix C. These procedures shall be followed by all NOAA employees performing work that may disturb asbestos-containing materials.

6.6 Respiratory Protection

Respirators shall be worn by all personnel performing Class III asbestos work, for all Class IV asbestos work in regulated areas, or for the clean up of asbestos debris or dust. Respirators shall be worn at all time when the exposure is above the PEL, regardless of work class. Required respirator type is dependent on the airborne concentrations of asbestos in the work area. Table 1 in Appendix E specifies the proper respirator to be used. NOAA employees required to wear respirators shall be properly fitted and trained in respiratory care and use.

6.7 Protective Clothing

Protective clothing is required for all Class III asbestos work and for all other asbestos work where airborne concentrations exceed the PEL. Protective clothing includes coveralls, gloves, and head and foot coverings.

6.8 Hygiene Facilities and Practices

Personnel performing Class III asbestos work shall establish a decontamination area adjacent to the regulated area for the decontamination of workers and their equipment. The area shall be covered by impermeable plastic sheeting on the floor or horizontal surface and must be adequately sized to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area. Workers shall enter and exit the regulated work area through the decontamination area. Decontamination practices are detailed in Appendix C, Section C 6.0.

6.9 Hazard Communications

Building occupants, employees, and contract personnel shall be informed of the presence, location, and quantity of ACM and the need to avoid disturbing it. Occupants, employees, and contract personnel can be informed by one or more of the following ways:

- Distribution of written notices
- Posting signs
- Holding awareness or information sessions
- Direct verbal communications

The methods used may depend on the type and location of the ACM, and on the number of people affected. Information sessions can reinforce and clarify written notices and signs and provide an opportunity to answer questions. All new employees shall be properly trained before beginning work, and new hires shall be immediately updated on information distribution lists.

Information provided to employees should contain the following:

- Information pertaining to asbestos as a health hazard with specific health effects;
- Descriptions and locations of ACM in the building;
- Information about the condition of existing ACM in the Main Clinic Building, including controls put in place for employee protection;
- Cautionary warnings regarding disturbing the ACM (e.g., Do **NOT** disturb Spray-On Textured Ceiling);
- Information for mandatory reporting of any evidence of disturbance or damage;
- ACM periodic inspection information and schedules. Reassure staff that measures will be taken when needed to protect the health of building occupants; and
- Name and phone number of the Safety Officer.

All friable ACM in the Main Clinic Building must be clearly marked with a label that reads:

"DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD"

This label shall be placed adjacent to the material or at the entrance to a maintenance space containing such materials.

6.10 Housekeeping

6.10.1 Vacuuming Equipment

HEPA-filtered vacuuming equipment shall be used to clean up asbestos debris and dust. Any vacuum without a HEPA filter will allow asbestos fibers to pass through to the air. Prior to using a HEPA vacuum to clean up asbestos dust and debris, employees shall check to ensure that the HEPA filter is in good condition and properly installed. Upon completion of clean up, the exterior of the HEPA vacuum and its hoses and tools will be vacuumed to remove any residual asbestos debris. The vacuum will be placed on an impermeable drop cloth and then emptied into a plastic disposal bag and sealed in a manner that minimizes the reentry of asbestos into the workplace. The contents of the bag should be wetted with water prior to sealing. Vacuum openings and hoses shall be sealed with tape prior to storage to prevent residual asbestos debris from falling out. Hoses and vacuum tools used on HEPA-vacuuming equipment shall NOT be used with other type vacuums.

6.10.2 Clean Up of Asbestos Dust and Debris

Dust and debris in areas containing friable ACM shall not be dry dusted or swept. This material shall be assumed to be asbestos-containing and vacuumed up with a HEPA filtered vacuum or wiped up using wet methods.

6.10.3 Care and Cleaning of Vinyl Asbestos Tile Flooring

Vinyl asbestos tile floor coverings must never be dry stripped, sanded, or dry leveled. These methods will release bound fibers. Wet-stripping is required to minimize the release of asbestos fibers. The following are some basic procedures to follow when dealing with vinyl asbestos tile floor coverings:

- Wet mop the floor using a solution of all-purpose cleaner or wax stripper.
- Use a putty knife to remove gum or other material, being careful not to damage the floor covering.
- Use low abrasive pads on floor machines, and do not reuse pads or use steel wool.
- Rinse and mop the floor with clean water.

6.10.4 ACM Waste Disposal

When NOAA personnel are required to perform work which will require disposal of ACMs, adhere to the disposal requirements listed in Appendix C 7.0, Temporary Storage and Disposal.

6.11 Medical Surveillance

All employees and contractors who are exposed to asbestos above the PEL are required to undergo medical surveillance according to 29 CFR 1910.1001. Contractors are responsible for conducting their own medical surveillance programs, however the Safety Officer shall ensure that NOAA contractors are conducting a medical surveillance program for activities at NOAA facilities and shall obtain copies of these records. All employees who wear respiratory protection as part of their job are required to have medical approval from a physician.

6.12 Recordkeeping

Employee asbestos exposures and medical records shall be maintained by NOAA for 30 years. These records must also be made available to the employee and representatives of the State and Federal government upon written request.

6.12.1 Records for Class I and Class II Asbestos Work

When asbestos is removed from the facility, the record of the removal should include:

1. A written description of the work, including:

- When the work was performed (start & stop dates);
- Location where the work was performed;
- Contractor's name, address, and competent person; and
- Disposal site name and location, if applicable.

2. A written description of the air monitoring performed, including:

- Name and signature of the air monitoring technician;
- Locations where air samples were collected;
- Date, activity being conducted, and type of air sample;
- Laboratory name and address;
- Number, duration, and dates of analysis and the results;
- Name and signature of the person performing the analysis; and
- Name, social security number, type of protective devices worn, and exposure of employees whose exposures are represented.

3. Records of all asbestos-containing waste materials transported off the facility, including:

- Name, address, and telephone number of the waste generator;
- Name and address of EPA office responsible for the NESHAP program;
- Approximate quantity of asbestos in cubic meters or cubic yards;
- Name and telephone number of the disposal site operator;
- Name and physical site location of the disposal site;
- Name, address, and telephone number of transporter and date transported; and
- Certification that contents are properly classified, packed, marked, and labeled for transport by highway according to applicable regulations.

6.12.2 Records for Class III and Class IV Asbestos Work

Class III and Class IV asbestos work activities are documented by recording the following information:

- Name and social security number of each person performing the activity;
- Start and completion dates of each activity;
- Location of the activity;
- Description of the activity; and
- If ACM was removed, the location of the storage or disposal site.

6.12.3 Training Records

A training record for each person shall be established and maintained for at least one year beyond. This record shall include:

- Name and position of person receiving training;
- The training course name, or course content;
- Date the training was completed;
- The location of the training;
- Hours completed in such training;
- Date and duration of refresher training; and
- A notation that a physical examination was/was not completed.

6.12.4 Other Records

- Inspection and assessment reports;
- A copy of this Asbestos O&M Plan (initial plan and all updated versions);
- Respiratory protection program;
- Reinspection/periodic surveillance reports; and
- Employee notifications.

7.0 TRAINING

All employees who may come into contact with ACM are required to have the proper training. The extensiveness of this training is dependent on the responsibilities and duties of the employee.

7.1 Asbestos Awareness Training

A 2-hour asbestos-awareness training workshop is required for all members of the maintenance and custodial staff who work in buildings containing ACM. Newly hired custodial and maintenance employees shall receive this training within 60 days of employment. This training provides custodians, electricians, Heating, Ventilation and Air Conditioning (HVAC) engineers, plumbers, etc. who may work in a building with ACM an overview of asbestos dangers and an ability to recognize and avoid asbestos-containing materials. The 2-hour maintenance and custodial staff training shall include, at minimum, the following information:

- Background information on asbestos;
- Health effects of asbestos;
- The type, appearance, and location of ACM in the building;
- How to recognize damaged ACM;
- Name and phone number of the Safety Officer and his responsibilities; and
- Location of the Main Clinic Building Asbestos O&M Plan.

7.2 Asbestos Maintenance Training

A 16-hour asbestos maintenance training workshop is also suggested for maintenance workers and employees who may conduct any activities resulting in the disturbance of ACM. Personnel who are Asbestos Hazard Emergency Response Act (AHERA) Certified Inspectors or those who are Alaska Certified Asbestos Workers are considered trained for the purposes of this section. This 16-hour maintenance training shall cover all items listed for awareness training above as well as the following subjects:

- Proper methods for handling ACM;
- Respiratory and personal protection; and
- The requirements of:
  a. 40 CFR 61 Subpart M - National Emission Standard for Asbestos; and
  b. 29 CFR 1926.1101 - Asbestos Standards for Construction.

APPENDIX A

NOAA
MAIN CLINIC BUILDING
FLOOR PLANS
AND
SAMPLE LOCATIONS

APPENDIX B

FIELD DATA SHEET
AND
LABORATORY REPORTS

APPENDIX C

WORK PRACTICES AND PROCEDURES

FOR

ASBESTOS-CONTAINING MATERIALS

APPENDIX C
WORK PRACTICES AND PROCEDURES FOR ASBESTOS-CONTAINING MATERIALS

C.1.0 GENERAL

The O&M work practices detailed in this appendix are to provide guidance to NOAA maintenance and custodial personnel for conducting custodial, maintenance, and repair work in accordance with an established asbestos O&M program and applicable regulations. It should be noted that NOAA personnel are to perform only Class III and Class IV asbestos work. The work practices in this manual are designed to minimize the disturbance of ACM and to clean up and contain materials, debris, and contamination resulting from ACM disturbances.

As a part of the O&M program, a designated Safety Officer will review building inspection information to determine whether or not a suspect material contains asbestos. If a suspect material which is to be disturbed has not been sampled, it should either be sampled and analyzed by an accredited laboratory, or be assumed to contain asbestos and treated accordingly.

The work practices in this manual are generally designed to address one material at a time. If more than one type of material is involved, work practices should be selected and used in the order in which the materials will be encountered during the work. If two (2) or more materials must be addressed at one time, O&M personnel in conjunction with the Safety Officer shall develop a combined work practice to address the particular work situation.

When developing a combined work practice, the Safety Officer shall implement the most precautionary level of work practices.

The Safety Officer shall conduct an Initial Exposure Assessment immediately before or at the initiation of any Class III or IV asbestos work to determine exposure air monitoring requirements for employees. The Safety Officer will arrange for the necessary personnel and equipment needed if air monitoring is required.

C 2.0 PROHIBITIONS

The following work practices and engineering controls shall **NOT** be used for work that disturbs ACM.

- Power tools that are not equipped with point-of-cut ventilator or enclosures with HEPA filtered exhaust air.
- Compressed air to remove asbestos or asbestos debris.
- Dry sweeping, shoveling or other dry clean up of dust and debris containing ACM.
- Vacuum cleaners not equipped with HEPA filters.
- Employee rotation as a means of reducing employee exposure to asbestos.

C 3.0 MANDATORY PRACTICES

As a minimum, the following engineering controls and work practices shall be used for all repairs or maintenance activities that disturb asbestos-containing materials regardless of the level of exposure:

- Vacuum cleaners equipped with HEPA filters to collect asbestos debris and dust.
- Wet methods to control asbestos fiber release during asbestos handling, removal, cutting, application, and clean up. The Safety Officer shall approve of alternate methods to be used for each case where the use of wet methods is not feasible due to electrical hazards, equipment malfunction, and, in roofing, slipping hazards.
- Prompt clean up and disposal of wastes and debris contaminated with asbestos in leak-tight containers.

C 4.0 PROCEDURES FOR FIBER RELEASE EPISODES

A fiber release episode is any uncontrolled or unintentional disturbance of ACM resulting in visible emissions of asbestos-containing materials. Fiber release episodes may occur as a result of equipment failure (pipe rupture, roof leak), fire, earthquake, or carelessness. Fiber release episodes may also occur during maintenance or repair projects. The following procedures shall be followed for all known or suspected fiber release episodes:

- Notification to the Safety Officer who will assign a trained in-house team to clean up debris and make repairs as soon as possible.
- Isolation of the spill area and posting of signs to prevent unauthorized personnel from entering. (Fire exit corridors must remain in operation).
- Shutdown of the air-handling system to prevent the distribution of asbestos fibers from the work site to other areas of the building.
- Clean up of the asbestos debris from the fiber release episode and documentation of all response activities.

C 5.0 GENERAL WORK PRACTICES AND ENGINEERING CONTROLS FOR CLASS III AND CLASS IV ASBESTOS WORK

Class III (maintenance and repair) asbestos work shall be conducted using engineering controls and work practices that minimize the exposure to employees performing the asbestos work and to bystander employees. Employees performing Class III jobs involving the disturbance of ACM shall wear respirators which are selected, used and fitted pursuant to provisions of 29 CFR 1926.1101.

Class IV asbestos work (janitorial and maintenance clean up) shall be conducted by employees who have completed a NOAA asbestos awareness training program. All Class IV work shall be conducted using wet methods, HEPA vacuums, and prompt clean up of debris containing ACM.

C 5.1 Floor Tile Removal Procedure

It should be assumed that all old floor tile and mastic are asbestos-containing unless analysis of the materials indicates otherwise. Personnel shall use the following steps for removal of small amounts of asbestos-containing floor tile or mastics when required for maintenance or repair only. Respirators and protective clothing shall be used for this type work. Large-scale (more than 10 square feet) removal of asbestos-containing floor tile shall not be performed by NOAA employees.

- Prepare the work area. Post asbestos warning signs and barrier tape, shut off electrical and HVAC systems, notify employees in area of planned work, et cetera.
- Wet down the area with a generous amount of water.
- Keep wet for a period of time to loosen tiles if necessary.
- Lift tiles and dispose in a properly labeled container as asbestos waste.
- Water-based mastics can be removed by soaking with water. Solvent-based mastics may require special solvents to remove. Do not use solvents that are flammable or contain halogenated hydrocarbons. Do not grind or sand mastics. Remove sufficient mastic to provide a smooth surface for applying replacement tile.
- Clean all surfaces in adjacent areas by HEPA vacuuming or by wiping down using wet methods.
- Place contaminated rags, disposable tools, HEPA vacuum contents, disposal clothes, etc. in a 6-mil plastic disposal bag. Clean outside of bag and dispose of as asbestos waste in accordance with Section C 7.0, Temporary Storage and Disposal.
- Decontaminate clothing and equipment in accordance with Section C 6.0, Decontamination Procedures

C 5.2 Non-friable Asbestos-Containing Material Removal Procedures

C 5.2.1 Cutting or Drilling Vinyl Asbestos Floor Tile, Cement Asbestos Shingles, or Gypsum Board with Asbestos-Containing Joint Compound

It should be assumed that all cement board, vinyl flooring, and gypsum wallboard/joint compound systems are asbestos-containing unless laboratory analysis of the materials indicates otherwise. Respirators and protective clothing shall be used for this type of work. Use the following procedures when cutting or drilling through these materials.

- Prepare the work area. Post asbestos warning signs and barrier tape, shut off electrical and HVAC systems, notify employees in area of planned work, place 6-mil plastic sheeting, etc.

- For the drilling of small holes, apply shaving cream or similar type foam to area where hole is to be drilled or cut. For large holes mist continuously with amended water during drilling or cutting operation. The use of an airless sprayer is recommended.
- Drill or cut hole in center of foam. Use misting water method in addition if foam does not contain cut materials.
- When complete, wet clean the area around the cut and encapsulate the surfaces that were cut. Thoroughly clean non-disposable tools such as the drill and bits. HEPA vacuum any remaining dust or debris.
- Place contaminated rags, disposable tools, HEPA vacuum contents, disposal clothes, etc. in a 6-mil plastic bag. Clean outside of bag and dispose of as asbestos waste in accordance with Section C 7.0, Temporary Storage and Disposal.
- Decontaminate clothing and equipment in accordance with Section C 6.0, Decontamination Procedures.

C 5.2.2 Removal of Vinyl Asbestos Floor Tile, Cement Asbestos Shingles, or Gypsum Board with Asbestos-Containing Joint Compound

Joint compounds used with gypsum board often contain asbestos in low quantities. NOAA employees may remove small quantities (up to 10 square feet) of gypsum board with asbestos-containing joint compound as necessary only for repairs or maintenance activities. Respirators and protective clothing shall be used for this type of work. Use the following procedures when removing materials with asbestos-containing joint compound:

- Prepare the work area. Post asbestos warning signs, barrier tape, shut off electrical and HVAC systems, notify employees in area of planned work, etc.
- Cover the floor and other horizontal surfaces with 6-mil plastic before beginning. Seal off doors with 6-mil plastic to prevent dust from being carried into other areas. Shutdown ventilation equipment and seal off all vents in the work area.
- Score the gypsum board to be removed with a sharp knife or cut manually with a gypsum board saw. Do not use power tools to cut the gypsum board. During sawing, another worker shall mist the area with water to control dust from the saw. Use of a HEPA vacuum is also recommended to capture dust.
- Remove the gypsum board in as large pieces as possible and place material in 6-mil plastic bags or wrap and seal in 6-mil plastic.
- Repair gypsum board as required using repair procedures described in the following section.
- HEPA vacuum all dust and debris from work area and wet wipe all remaining dust from plastic and work area surfaces. Thoroughly vacuum and wet wipe non-disposable tools.

- Place contaminated rags, disposable tools, HEPA vacuum contents, disposal clothes, etc. in a 6-mil plastic bag. Clean outside of bag and dispose of as asbestos waste in accordance with Section C 7.0, Temporary Storage and Disposal.
- Decontaminate clothing and equipment in accordance with Section C 6.0, Decontamination Procedures.

C 5.2.3 Repair of Vinyl Asbestos Floor Tile, Cement Asbestos Shingles, or Gypsum Board with Asbestos-Containing Joint Compound

- HEPA vacuum damaged area of all loose debris.
- Fill with compatible non-asbestos filler such as joint compound.
- Let dry and use wet sponge technique to blend into adjacent surfaces. Do not sand.
- Finish to match adjacent surfaces.
- Dispose of any debris as asbestos waste in accordance with Section C 7.0, Temporary Storage and Disposal.
- Decontaminate clothing and equipment in accordance with C 6.0, Decontamination Procedures.

C 6.0 DECONTAMINATION PROCEDURES

The following personnel decontamination procedures will be followed for all asbestos work performed by NOAA employees.

- Establish an area next to the regulated area where decontamination of employees and equipment can take place.
- Place a 6-mil piece of poly (6' x 6' minimum) on the floor to catch any dust during decontamination.
- Clean outer suit with damp rags or a HEPA vacuum. Have another employee vacuum or wipe your back. Wipe off respirator with clean wet rag while still wearing it. Place contaminated rag in 6-mil poly disposal bag.
- Remove outer suit carefully, rolling it inside out and placing it in disposal bag. If wearing two suits, repeat above steps.
- Roll up the poly on the floor and place in disposal bag along with contaminated rags and suits. Remove respirator and place filters in disposal bag
- Remove air from bag with HEPA vacuum, twist shut, fold and duct tape to prevent the bag from leaking. Place taped bag into a labeled 6-mil disposal bag and seal in same manner. Dispose of in accordance with Section C 7.0, Temporary Storage and Disposal.
- Wash hands, face, and respirator thoroughly.

C 7.0 TEMPORARY STORAGE AND DISPOSAL

All debris and waste generated during ACM activities shall be disposed of in accordance with the following:

- ACM or asbestos-contaminated waste shall be placed in a labeled 6-mil poly bag and sealed with duct tape. The bag shall be double bagged in a second labeled 6-mil poly bag and sealed with duct tape.
- All asbestos material shall be saturated with water inside the inner 6-mil poly bag prior to sealing. This will limit fiber release if the bag is broken during transportation or disposal.
- Temporary storage of asbestos waste shall be in an area with limited access by employees and shall be marked with signs and barrier tape. All asbestos waste temporarily stored shall be in properly marked and labeled 6-mil plastic bags.
- Asbestos waste manifests shall be completed prior to transporting asbestos to a permitted landfill. The Environmental Engineer shall ensure a copy of the manifest is received and one copy maintained on file.
- Asbestos waste shall be transported in an enclosed or covered vehicle to a permitted landfill. Prior arrangements shall be made with the landfill for acceptance procedures and restrictions.

APPENDIX D

REINSPECTION OF ACM

NOAA MAIN CLINIC BUILDING
ASBESTOS REINSPECTION REPORT

All ACM in the facilities should be scheduled for an inspection of damage or deterioration every year. Records of these inspections and any sampling results should be kept on file in the Appendices of this O&M Plan. The following form is provided as an example and may be used to record inspections. An EPA-Accredited Inspector should make these inspections.

NAME OF INSPECTOR:_____ PHONE #:_____

ORGANIZATION: _____

ADDRESS: _____ CITY, STATE, ZIP: _____

INSPECTOR COURSE AND DATE OF ACCREDITATION: _____

BUILDING INSPECTED: _____ DATE: _____

List all known or assumed ACM and note its location and condition. Indicate if ACM has been removed since last inspection.

ACM	LOCATION	CONDITION

NEXT INSPECTION DUE DATE: _____

NOAA MAIN CLINIC BUILDING
ASBESTOS REINSPECTION REPORT
CONTINUED

The following lists the materials that tested positive for asbestos in the Main Clinic Building. Care should be taken when using this data as an indication of the location of asbestos-containing materials in the facility. Asbestos-containing materials may exist in locations other than shown in the list below. For example: The same vinyl floor tile found in several rooms may have been sampled in only one room. If one sample tested positive for asbestos, all similar floor tile is also assumed to be positive. It is best to refer to section 5.2, Main Clinic ACM Summary and the Main Clinic Floor Plans (Appendix A) for locations of ACM during periodic reinspections.

Main Clinic Building

SAMPLE #	MATERIAL	LOCATION	ASBESTOS
CL1015-A07	9x9 gray floor tile with white streaks	Room 1, E wall	1.3% Chrysotile
CL1015-A08	Joint compound	Room 3, N wall	3.4% Chrysotile
CL1015-A09	FT-1	Room 29, E wall	Tile 2.5% Chrysotile Mastic None Detected
CL1015-A10	Joint compound	Room 29, E wall	1.6% Chrysotile
CL1015-A14	White sink undercoating	Room 29, NW corner	1.5% Chrysotile
CL1015-A15	FT-1	Corridor 26, E end	Tile 1.2% Chrysotile Mastic None Detected
CL1015-A20	White sink undercoating	Room 24	6.9% Chrysotile
CL1015-A21	Joint compound	Room 25, S end of shielding wall	3.5% Chrysotile
CL1015-A24	White sink undercoating	Room 7	1.8% Chrysotile
CL1015-A28	Pink sink undercoating	Room 18, S wall	10% Chrysotile
CL1015-A45	Black floor tile mastic	Room B3, center	4.6% Chrysotile
CL1015-A55	Cement shingle	Main entry vestibule, W wall, S end	20% Chrysotile
CL1016-A73	12 x 12 gray floor tile, with white streaks (FT-3)	Closet in SE corner of 2-10	Tile 2.2% Chrysotile Mastic None Detected
CL1016-A75	White sink undercoating	Room 2-11	10% Chrysotile
CL1016-A78	Pink sink undercoating	Room 2-22, W wall	10% Chrysotile

APPENDIX E

RESPIRATOR REQUIREMENTS

RESPIRATOR REQUIREMENTS

Respirators shall be worn by all NOAA employees performing Class III asbestos work, for all Class IV asbestos work in regulated areas, and for the clean up of asbestos debris or dust. Respirators shall be worn at all times when the exposure is above the PEL regardless of work class. Respirator type required is dependent on the airborne concentrations of asbestos in the work area. Table 1 specifies the proper respirator to be used. NOAA employees required to wear respirators shall be familiar with respirators and shall be properly trained in their use.

Respiratory Protection For Asbestos Fibers

Airborne Concentration of Asbestos or Conditions of Use:	**Required Respirator**
Not in excess of 1 f/cc (10 x PEL) or otherwise as required independent of exposure pursuant to 29 CFR 1926.1101 (h)(2)(iv).	Half -mask air purifying respirator other than a disposable respirator, equipped with high efficiency filters.
Not in excess of 5 f/cc (50 x PEL)	Full facepiece air-purifying respirator equipped with high efficiency filters.
Not in excess of 10 f/cc (100 x PEL)	Any powered air-purifying respirator equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode.
Not in excess of 100 f/cc (1000 x PEL)	Full facepiece supplied air respirator operated in pressure demand mode.
Greater than 100 f/cc (1000 x PEL) or unknown concentration	Full facepiece supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.